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August 17, 2015

Ms. Patricia Simmons Pierre
Remedial Project Manager
United States Environmental Protection Agency, Region 2
290 Broadway FL19
New York, 10007-1866

Subject: Dayco Corporation/L. E. Carpenter Superfund Site
USEPA ID No. NJD002168748
Transmittal of Unfiltered and Filtered Groundwater and Surface Water Sampling Results for *bis*-2-ethylhexyl phthalate (DEHP)

Dear Patricia:

This letter provides followup to our July 15th site visit and subsequent discussions related to the above-referenced site. TRC Environmental Corporation (TRC), on behalf of L.E. Carpenter & Company (LEC), is transmitting unfiltered and filtered groundwater and surface water sampling results for DEHP. As discussed in our meeting following the site visit, these samples were collected during the regularly scheduled Third Quarter (3Q) sampling event at the site during the week of July 20, 2015. The filtered samples were collected as a supplement to the routine quarterly sampling event to discern what portion of the DEHP observed in groundwater and surface water samples might be sorbed to fine matrix particles unintentionally captured as part of the sampling process, instead of being present in a dissolved form in groundwater.

DEHP in Groundwater

As part of the 3Q15 monitoring event, 14 monitoring wells in the wetland area were sampled and analyzed for unfiltered and filtered DEHP. Groundwater samples were collected in accordance with the procedures contained in the New Jersey Department of Environmental Protection's (NJDEP's) *Field Sampling Procedures Manual* (Revised August 2005). Filtered groundwater sample aliquotes were field-filtered using a 0.45 µm filter. A duplicate groundwater sample for DEHP was collected at MW-25R (Dup-01). Unfiltered and field-filtered groundwater samples for DEHP analysis were submitted to Trace Analytical Laboratories, Inc. located in Muskegon, Michigan (State of New Jersey Laboratory Certification No. MI008).

Table 1 presents unfiltered and filtered results for DEHP in groundwater. The data supports that the overwhelming majority of DEHP observed in groundwater samples is associated with solids present in the groundwater samples. Only two of 14 filtered samples, MW-31S and MW-32S located in the center of the wetland area plume, contained dissolved DEHP at concentrations slightly greater than the New Jersey Groundwater Quality Standards (NJGWQS) for DEHP of 3.0 µg/L. Eleven of 14 filtered samples did not contain detectable concentrations of dissolved DEHP. Isoconcentration maps of unfiltered (total) and filtered (dissolved) DEHP in groundwater are presented Figure 1 and Figure 2, respectively.

DEHP in Surface Water

As part of the 3Q15 monitoring event, five surface water locations (SW-D-1, SW-D-2, SW-D-3, SW-D-4, and SW-D-5) were sampled within the Eastern Drainage Channel that separates the adjacent Air Products property from the LEC Site and the adjacent Wharton Enterprises property. Surface water samples were also collected at the intersection of the Eastern Drainage Channel and the Rockaway River (approximately 10 feet upstream in the Eastern Drainage Channel, DRC-02) and at five surface water samples from the Rockaway River (SW-R-1, SW-R-2, SW-R-3, SW-R-4) inclusive of a background location at SW-R-6.

Filtered surface water sample aliquotes were lab-filtered using a 0.45 µm filter. A duplicate surface water sample for DEHP was collected at SW-D-2 (Dup-02). Unfiltered and lab-filtered surface water samples for DEHP were also analyzed by Trace Analytical Laboratories, Inc.

Table 2 presents unfiltered and filtered results for DEHP in surface water from the Eastern Drainage Channel and the Rockaway River. The data supports that all DEHP observed in surface water samples is associated with solids entrined in the surface water samples. No filtered surface water contain detectable concentrations of DEHP. Figure 1 and Figure 2, respectively, presents unfiltered (total) and filtered (dissolved) DEHP in surface water.

Conclusions and Recommendations

The comparison of unfiltered and filtered sample results confirms that vast majority of DEHP observed in groundwater monitoring results is due to DEHP being sorbed to fine matrix particles, primarily silts and clays, which are unintentionally captured as part of

the sampling process, as opposed to being present in a dissolved form in groundwater. This observation is consistent with the fine silt and clay particles present in the soils in the wetland area. This association of DEHP with solids also provides an explanation for the steep concentration gradient in the vicinity of MW-32S and MW-35S. Likewise, the sampling confirms that the low-level DEHP sporadically observed in surface water samples collected from both the eastern drainage ditch and the Rockaway River is present on solids entrained in the samples and not dissolved in the surface water.

While current and historical unfiltered groundwater sample results indicate elevated DEHP concentrations in several monitoring wells in the MW-30 area, the dissolved fraction in groundwater is minor. As DEHP is sorbed to the fine matrix particles within the aquifer, mobility outside the current DEHP footprint is limited, and thus the extent has been defined. TRC believes the the current DEHP footprint in groundwater represents a steady-state condition.

USEPA and NJDEP have expressed concern regarding the completeness of DEHP delineation in the MW-30 Area. Based on this supplemental sampling, TRC believes that groundwater quality in the MW-30 Area is delineated. As reflected on Figure 2, dissolved DEHP concentration are only slightly above the NJGWQS and confined to a limited portion of the MW-30 Area bounded by the phytoremediation pilot. Monitoring wells are present downgradient of this area and do not contain dissolved DEHP.

TRC recommends that a formal decision on MW-30 Area delineation be deferred until such time as confirmatory filtered groundwater and surface water samples are collected as a component of the 4th Quarter sampling in the wetland area to confirm the site conceptual model and steady state plume delineation.

Sincerely,
TRC Environmental Corporation

Karen C. Saucier, PhD
Project Coordinator

Attachments: Attachment 1 Tables and Figures

cc: Ernie Schaub, LEC, Barry Culp. PG (TRC)

Attachment 1
Tables and Figures

TABLE 1
Dayco Corporation / L.E. Carpenter Superfund Site
Borough of Wharton, Morris County, New Jersey
3Q15 Groundwater Monitoring - Total and Dissolved DEHP (ug/L)

ANALYTE	MW-8	MW-25R	MW-25R (Duplicate)	MW-27S	MW-28S	MW-28I	MW-29S	MW-30S(R)	MW-30I	MW-30D	MW-31S	MW-32S	MW-33S	MW-34S	MW-35S
Sampling Date	7/22/2015	7/22/2015	7/22/2015	7/22/2015	7/23/2015	7/23/2015	7/22/2015	7/20/2015	7/21/2015	7/23/2015	7/22/2015	7/22/2015	7/23/2015	7/21/2015	7/22/2015
Total DEHP	**5.5**	<1.0	**15 j**	<1.0 uj	**130**	**6.6**	<1.0	2.8 u	<1.0	2.8 u	**2,700**	**11,000**	**820**	**13**	**2,200**
Dissolved DEHP	<1.0	<1.0	<1.0	<1.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**3.5**	**3.6**	**1.6**	<1.0	<1.0

LEGEND
ug/L = micrograms per liter
Bold concentrations are above detection limits
Concentration exceeds NJGWQS of 3.0 ug/L
"u" = Laboratory reported detection not validated during data quality review.
"j" = Concentration considered an estimate based on data quality review.
"uj" = Not detected; quantitation limit is approximate.

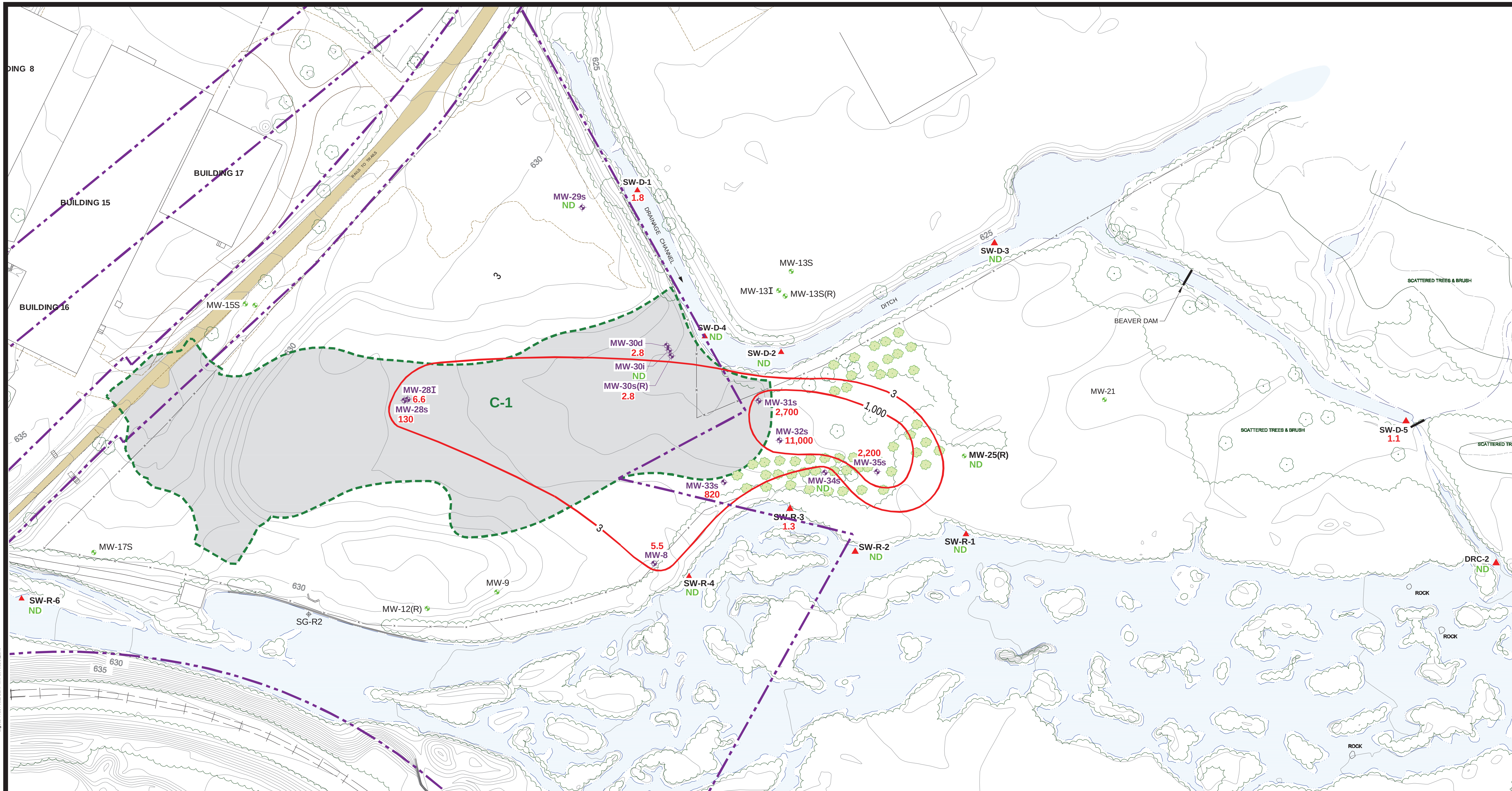
NOTES
Low flow sampling initiated 1st quarter 2002.
(1) New Jersey Department of Environmental Protection Ground Water Quality Standards (NJGWQS) from NJAC 7:9C GWQS last amended July 22, 2010.
(2) Samples were taken at the same time as their counterparts, only bottles for DEHP were field-filtered. (F) indicates a filtered sample.

TABLE 2
Dayco Corporation / L.E. Carpenter Superfund Site
Borough of Wharton, Morris County, New Jersey
3Q15 Surface Water Monitoring - Total and Dissolved DEHP (ug/L)

ANALYTE	EASTERN DRAINAGE CHANNEL							ROCKAWAY RIVER				
	SW-D-1	SW-D-2	SW-D-2 (Duplicate)	SW-D-3	SW-D-4	SW-D-5	DRC-2	SW-R-1	SW-R-2	SW-R-3	SW-R-4	SW-R-6
Sampling Date	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/27/2015
Total DEHP	1.8 u	<1.0	<1.0	<1.0 u	<1.0	1.1 u	<1.0	<1.0	<1.1	**1.3**	<1.0	<1.0
Dissolved DEHP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

LEGEND
ug/L = micrograms per liter
Bold concentrations are above detection limits
Concentration exceeds NJSWQC or background (SW-R-6) concentration which ever is greater.
"u" = Laboratory reported detection not validated during data quality review.
"j" = Concentration considered an estimate based on data quality review.
"uj" = Not detected; quantitation limit is approximate.

NOTES
(1) Per NJDEP request, along with a change in laboratories, the detection limits for site COCs were lowered.
(2) New Jersey Department of Environmental Protection Surface Water Quality Standards (NJSWQS) from NJAC 7:9B as amended April 4, 2011.
(3) Samples were taken at the same time as their counterparts, only bottles for DEHP were lab-filtered. (F) indicates a filtered sample.



LEGEND

APPROXIMATE PROPERTY LINE		1,000	ISOCONCENTRATION FOR TOTAL DEHP (ug/L) IN GROUNDWATER
FENCE LINE		5.7	TOTAL DEHP (ug/L) IN GROUNDWATER
TREES		ND	NOT DETECTED
MW-19-21	GROUNDWATER ELEVATION MONITORING WELL LOCATION AND NUMBER (s = shallow, i = intermediate, d = deep)	630	POST-REMEDIATION GROUND SURFACE ELEVATIONS
MW-19R	PRMP MONITORING WELL LOCATION AND NUMBER (s = shallow, i = intermediate, d = deep)	625	SHALLOW GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
GEI-3I	PIEZOMETER LOCATION		APPROXIMATE GROUNDWATER FLOW DIRECTION
SW-R-5	SURFACE WATER SAMPLING LOCATION (D = DITCH; R = RIVER)	C-1	OUTLINE OF 2005 SOURCE REDUCTION AREA AND SUBSURFACE SLURRY MONOLITH
	PHYTOREMEDIATION TREE LOCATION		LIMIT OF TEMPORARY CONSTRUCTION EASEMENT

NOTES

1. BASE MAP DEVELOPED FROM TOPOGRAPHIC SURVEY PROVIDED BYJAMES M.STEWART, INC. LAND SURVEYORS, DRAWING NO 2793-03.DWG, DATED 02-14-02 AS REVISED 04-10-07 (DRAWING NO. 314907REV.DWG).
2. AS DESCRIBED IN THE November 2005 RAR (SEE FIGURE 9 IN THAT REPORT), THE SLURRY MONOLITH AT AND PARALLEL TO THE DRAINAGE CHANNEL DITCH ENDS APPROXIMATELY 10 FEET WEST OF THE ACTUAL WATERS EDGE.
3. MW-30 AREA MONITORING WELLS WERE RE-SURVEYED IN 2011 DURING SURVEY OF INVESTIGATION SOIL BORINGS. SURVEY CONDUCTED BY DENNIS SKLAR, INC.

0 42' 84' 126' 168'
APPROXIMATE SCALE IN FEET

NO.	BY	DATE	REVISION	APP'D
3				
2				
1				

PROJECT: DAYCO CORPORATION / L.E. CARPENTER SUPERFUND SITE WHARTON, NEW JERSEY

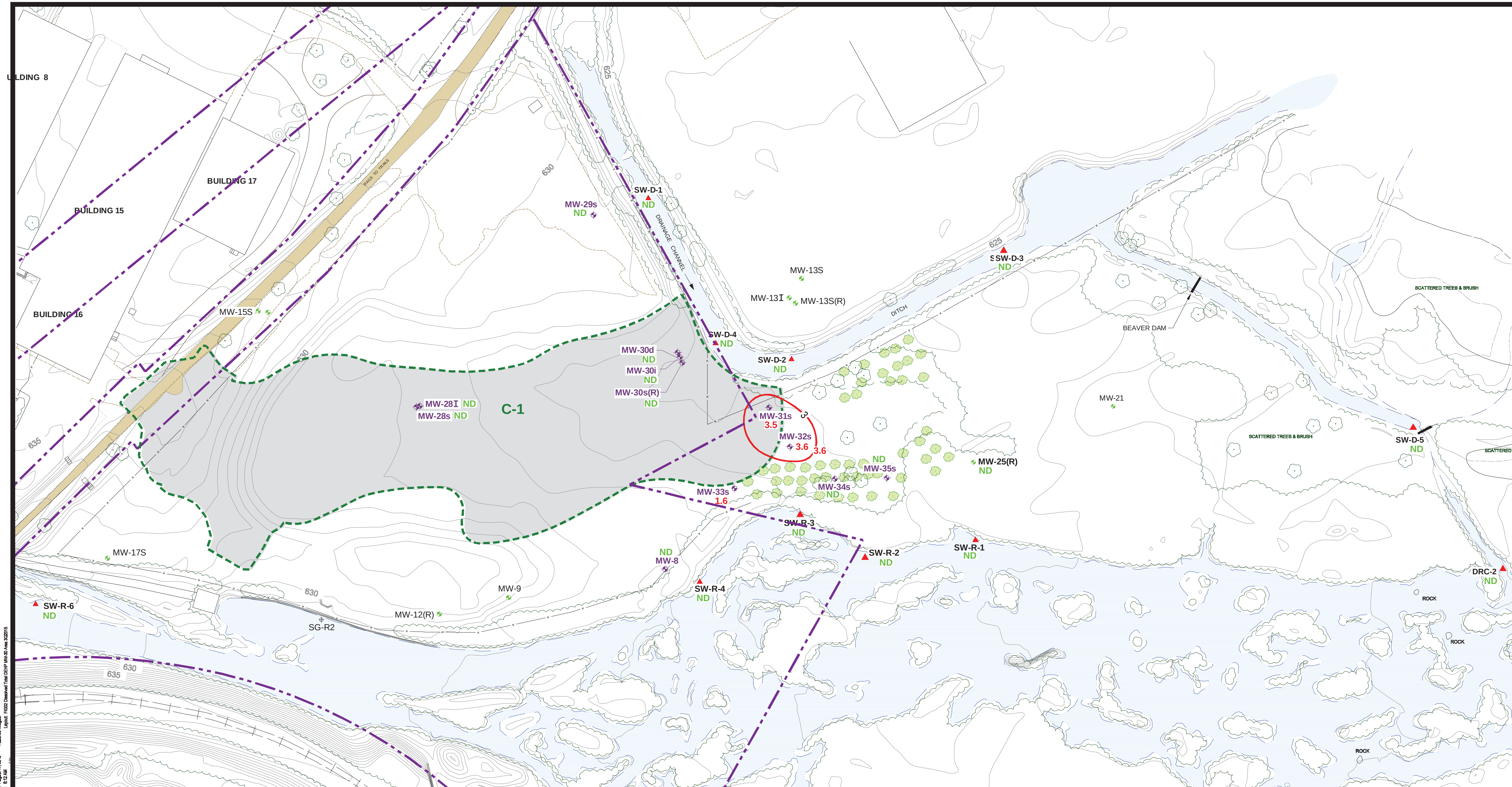
TITLE: 3rd QUARTER 2015 TOTAL DEHP ISOCONCENTRATION CONTOURS (ug/L) FOR THE MW-30 AREA

DRAWN BY: SJL/DGS	SCALE: AS INDICATED	PROJ. NO.	229438.0000.01
CHECKED BY: SP		FILE NO.	229438.0000.01.01.dwg
APPROVED BY: -	DATE PRINTED:	FIGURE 1	
DATE: AUGUST 2015			

TRC

2025 Beltline Ave. SE, Suite 402
Grand Rapids, MI 49546
Phone: 201.636.5958
Fax: 616.975.1098

PLOT DATA
Drawing Name: J:_TRC\LE Carpenter\229438\0000\01_DEHP Rpt\229438.0000.01.01.dwg
Operator Name: STEHLE, DIANAH
Drawing Plot Scale: 0.386863
Dwg Size: 0.73 Mb
Plot Date: August 17, 2015
Plot Time: 8:02 AM
Attached Xrefs: bmc020111
Attached Images:
Layout: FIG01 Total DEHP MW-30 Area 3Q2015



LEGEND

(purple dash-dot line)	APPROXIMATE PROPERTY LINE
—x—	FENCE LINE
(tree line)	TREES
MW-19-21	GROUNDWATER ELEVATION MONITORING WELL LOCATION AND NUMBER (s = shallow, i = intermediate, d = deep)
MW-19R	PRMP MONITORING WELL LOCATION AND NUMBER (s = shallow, i = intermediate, d = deep)
GEI-3I	PIEZOMETER LOCATION
SW-R-5	SURFACE WATER SAMPLING LOCATION (D = DITCH; R = RIVER)
(tree symbols)	PHYTOREMEDIATION TREE LOCATION
3	ISOCONCENTRATION FOR DISSOLVED DEHP (ug/L) IN GROUNDWATER
5.7	TOTAL DEHP (ug/L) IN GROUNDWATER
ND	NOT DETECTED
630	POST-REMEDIATION GROUND SURFACE ELEVATIONS
625	SHALLOW GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
(arrow)	APPROXIMATE GROUNDWATER FLOW DIRECTION
C-1	OUTLINE OF 2005 SOURCE REDUCTION AREA AND SUBSURFACE SLURRY MONOLITH

NOTES

1. BASE MAP DEVELOPED FROM TOPOGRAPHIC SURVEY PROVIDED BYJAMES M.STEWART, INC. LAND SURVEYORS, DRAWING NO 2793-03.DWG, DATED 02-14-02 AS REVISED 04-10-07 (DRAWING NO. 314907REV.DWG).
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0 42' 84' 126' 168'
APPROXIMATE SCALE IN FEET

NO.	BY	DATE	REVISION	APP'D
3				
2				
1				

PROJECT: DAYCO CORPORATION / L.E. CARPENTER SUPERFUND SITE WHARTON, NEW JERSEY

TITLE: 3rd QUARTER 2015 DISSOLVED TOTAL DEHP ISOCONCENTRATION CONTOURS (ug/L) FOR THE MW-30 AREA

DRAWN BY: SJL/DGS	SCALE: AS INDICATED	PROJ. NO. 229438.0000.01	
CHECKED BY: SP		FILE NO. 229438.0000.01.02.dwg	
APPROVED BY: -	DATE PRINTED:	FIGURE 2	
DATE: AUGUST 2015			

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PLOT DATA
Drawing Name: J:_TRC\LE Carpenter\229438\0000\01_DEHP Rpt\229438.0000.01.02.dwg
Operator Name: STEHLE, DIANAH
Drawing Plot Scale: 0.386863
Dwg Size: 0.71 Mb
Plot Date: August 17, 2015
Plot Time: 8:12 AM
Attached Xrefs: bmc020111
Attached Images:
Layout: FIG02 Dissolved Total DEHP MW-30 Area 3Q2015